

Radar Analysis of Fall Migration Stopover Sites in the Northeastern U.S.



The Challenge: Most conservation efforts for landbirds in North America have focused on protecting or enhancing breeding habitat. For migratory species, however, migration may be the period in the annual cycle when mortality is highest. In fall, juvenile birds are making their first migratory flights; their success, and that of adult birds, depends on the availability of suitable habitats where they can safely rest and forage. Identifying important stopover sites and habitats is thus a critical step in development of comprehensive conservation plans for migratory landbirds.

The Science: Data collected during Fall 2008 & 2009 by 16 weather surveillance radars (WSR-88D) in USFWS Region 5 were used to identify important stopover sites across the northeastern U.S. These radars detect birds as they depart daytime stopover sites to embark on nocturnal migratory flight. The aerial density of birds, as measured by radar reflectivity, was georeferenced to the approximate locations on the ground from which birds emerged. Areas were considered 'important' stopover sites if mean bird density across nights was consistently or occasionally high. These results were used to develop models to predict potentially important stopover sites across the region, based on land cover and geographic location. The analyses indicate that preserving patches of natural habitat, particularly deciduous forests, in developed or agricultural landscapes and along major coastlines should be a priority for conservation of migratory landbirds in the northeastern U.S.

The Future: Additional research is underway to validate both the observed and predicted results through ground surveys, supplemental radar observations, and further methodological refinements. Project results and products will help to focus conservation efforts for migrating landbirds on areas and habitats where they are likely to be most effective, contributing directly to Bird Conservation Region plans of the Atlantic Coast and Appalachian Joint Ventures, Comprehensive Conservation Plans for Region 5 refuges, State Wildlife Action Plans, and to broader regionwide planning for migratory bird conservation.

